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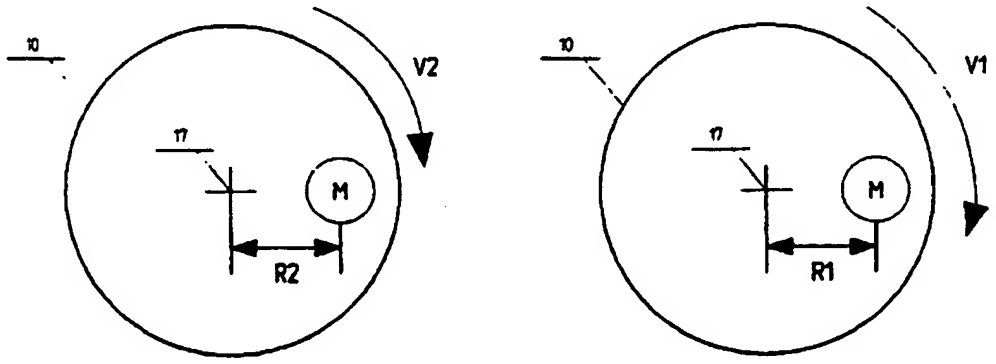
(54) Title: A METHOD AND A DEVICE FOR ALTERING OF THE ANGULAR VELOCITY OF A DRIVEN ROTATING MEDIA CARRIER



(57) Abstract

A method and a device at a rotating media carrier in optical or magnetical recording and playback machines, whereby a radial displacement of at least one mass quickly and simply changes the angular velocity of the carrier, resulting in a considerably reduced access time to the information stored on the medium.

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A method and a device for altering of the angular velocity of a driven rotating media carrier.

This invention concerns a method to reduce the access time for rotating storage media with variable angular velocity by displacement of existing kinetic energy, while at the same time the energy consumption is being reduced. The access time for rotating strage media is based on a radial displacement of the reading head and a pending of the correct position of the rotating disc (turning). In order to put a maximum of information on a circular, rotating disc surface, some storage media have been constructed according to the CLV (Constant Linear Velocity) method, i. e. the disc is being read at a constant velocity along the track, thus constantly changing its angular velocity at recording or reading at different radial distances. Disc storage media with a partition in sectors could have the number of sectors as a step by step function of the radius.

The invention could for example be used on discs of the Compact Disc type, which under continuous reading constantly change their angular velocity by keeping a constant reading speed along the information track. For applications of Compact Discs on computers, so-called CD-ROM, the angular velocity of the disc must in a short time and frequently be altered at each reading, as the information normally is scattered on different locations and thus at different radii on the disc.

Certain sectorized storage media with an extended number of sectors with a extended number of radii also requires a change of the angular speed at recording or reading at different radii. Normally a relatively large quantity of energy and a powerful driver unit are required in order to alter the angular velocity in a short time.

The cost for this is traditionally relatively high. Forces of actions and reactions often cause vibrations and thus interferences easily may arise when reading.

The purpose of the invention is to at a low cost considerably reduce the access time in machines of the above mentioned types. The purpose is achieved by the

method and the device in accordance with the applications for the patent.

The invention will be described below with reference to enclosed drawings, where fig. 1a and 1b show the concept and fig. 2 schematically shows how this is done in practice.

The rotating system (10) is provided with one or several masses (fig. 1a and 1b), attached so that they can be moved radially from the axis of rotation (17), shown at R1 and R2, altering the angular velocity without considerable supply of energy, without forces of reaction and in a very short time.

There is also a possibility to store the energy and have it transferred by other means to the rotating system, but in a way that does not affect the energy at a changed angular velocity. Thus this concerns a system with a constant energy and an altering rotating inertia.

Fig. 2 shows in detail how this is achieved in practice.

(10) represents a disc, connected to the end of a centrally placed spindle (11), which in its other end is a part of a driving gear (12). The spindle (13) protruding from driving gear (12) is connected to a system of at least one weight (16), which can be moved radially towards the axis of rotation (17) by means of an electomagnet or a stepping motor (18). The motor (14) supply the system with the energy necessary for rotation.

When a change of angular velocity for (10) and (11) is desired, energy can be transferred by a change of the radial position of at least one weight (16) by an electromagnet or a stepping motor (18).

The gear (12) changes the relations between the angular velocity for at least one weight (16) and the disc (10) and the spindle (11), so that energy requirements are less for the radial transfer of at least one weight (16), than had they been mounted direcly on the spindle (11).

Claims

1. A method for altering the angular velocity (V1, V2) of a driven, rotating media carrier (3) in optical or magnetical recording and reading machines, characterized by at least one mass M connected to the carrier (10), which is radially transferred in relion to the axis of rotation (17) of the carrier (10), so that the rotation inertia of the media carrier (3) is varied with maintained energy.

2. Device for alteration of the angular velocity on a driven, rotating media carrier (10) in optical or magnetical recording and reading machines, characterized by: at least one weight mounted on the media carrier (10) or its driving shaft (11, 13). This weight is radially movable in relation to the axis of rotation (17) of the media carrier, so that the rotation inertia of the media carrier is varied with maintained energy.

3. Device according to application no. 2, characterized by two weights (16) mounted diametrically opposite to each other, one on each side of the axis of rotation (17) of the media carrier (10).

4. Device according to application nos. 2 or 3, characterized by the weight or weights (16) being stored on the shaft (13) of of the driving motor (14) on the media carrier (10) via a gear (12).

Fig 1a

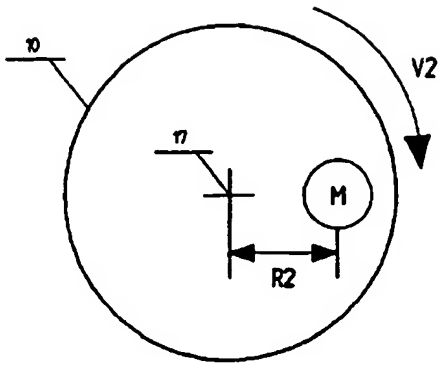


Fig 1b

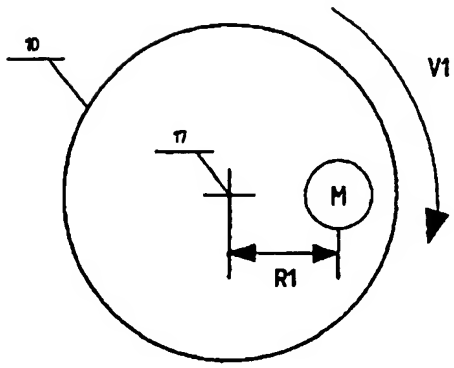
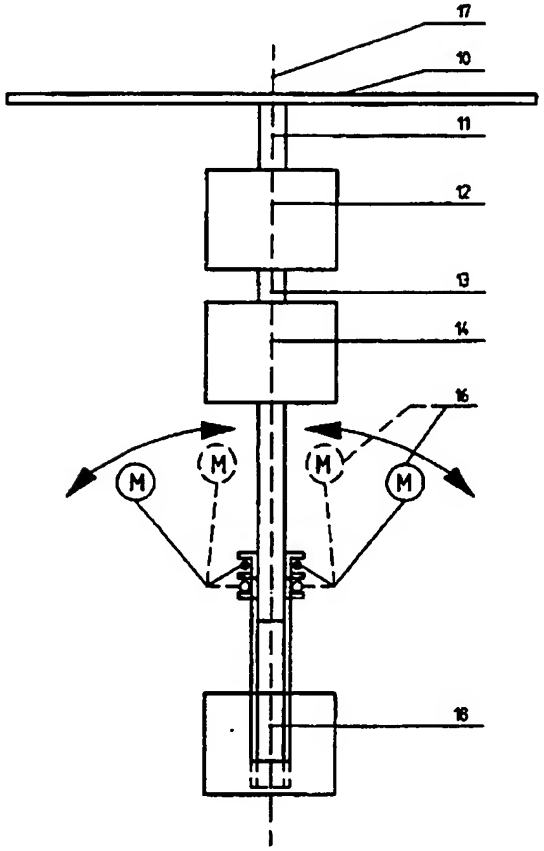


Fig 2



INTERNATIONAL SEARCH REPORT

International Application No PCT/SE 92/00095

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)[6]

According to International Patent Classification (IPC) or to both National Classification and IPC

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II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
IPC5	G 11 B

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched[8]

SE,DK,FI,NO classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category *	Citation of Document,[11] with indication, where appropriate, of the relevant passages[12]	Relevant to Claim No.[13]
A	CH, A, 245425 (OTTO JAEGER) 16 July 1947, see the whole document	1,2

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IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
15th June 1992	1992 -07- 01
International Searching Authority	**Signature of Authorized Officer**
SWEDISH PATENT OFFICE	BO GUSTAVSSON

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